Progress report: study 2

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Participants

In the preregistration, we aimed at 150 participants for each between subject condition. We, in the end, recruited 310 participants from Prolific. 9 participants were excluded because they failed the attention check item. 150 participants (78 female, $M_{\text{age}} = 28.60$, $SD_{\text{age}} = 8.33$) were in the condition where ties are allowed in the responses, and 151 participants (69 female, $M_{\text{age}} = 29.20$, $SD_{\text{age}} = 10.25$) were in the condition where ties are not allowed in the responses.

Predictions for the ranking task

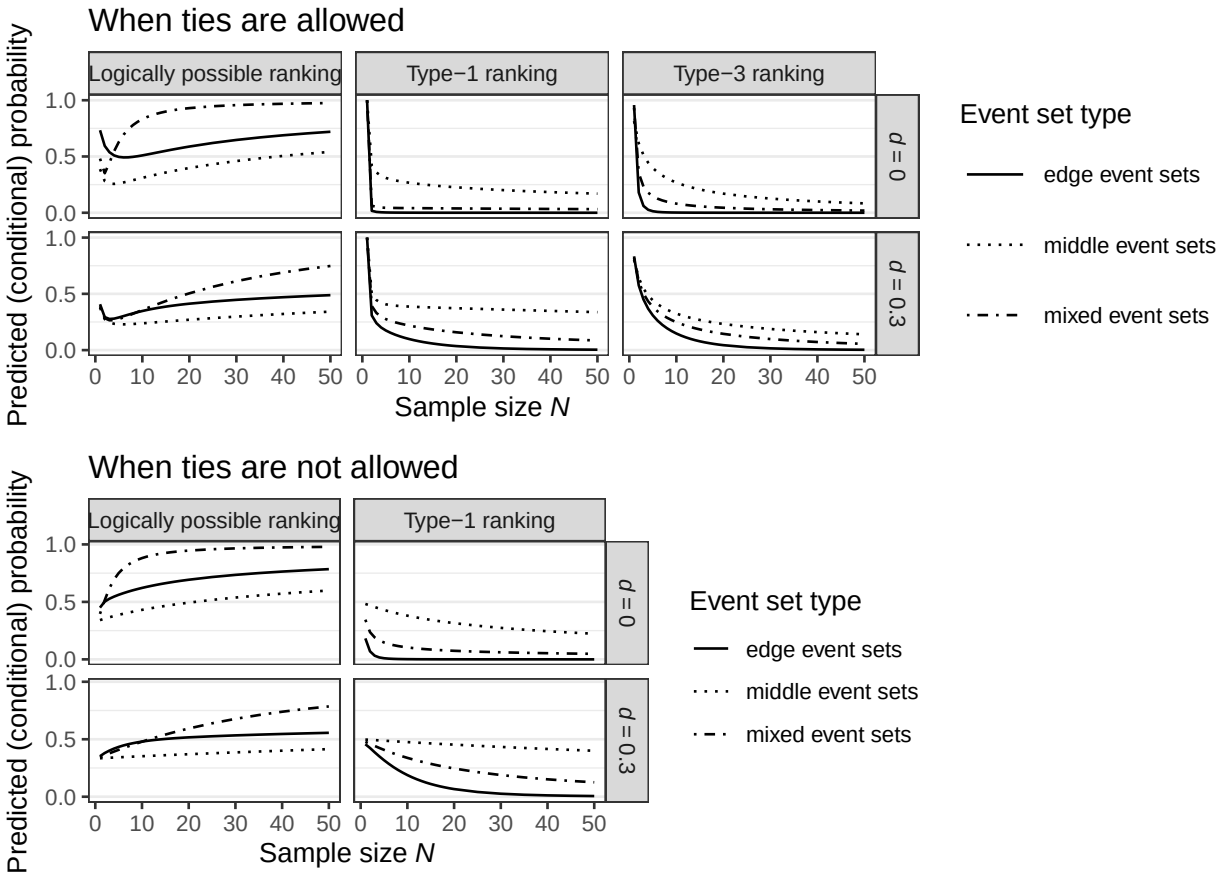


Figure 1. Predicted (conditional) probability of giving different types of rankings as a function of event set types, error rates d, and sample sizes N.

Analyses

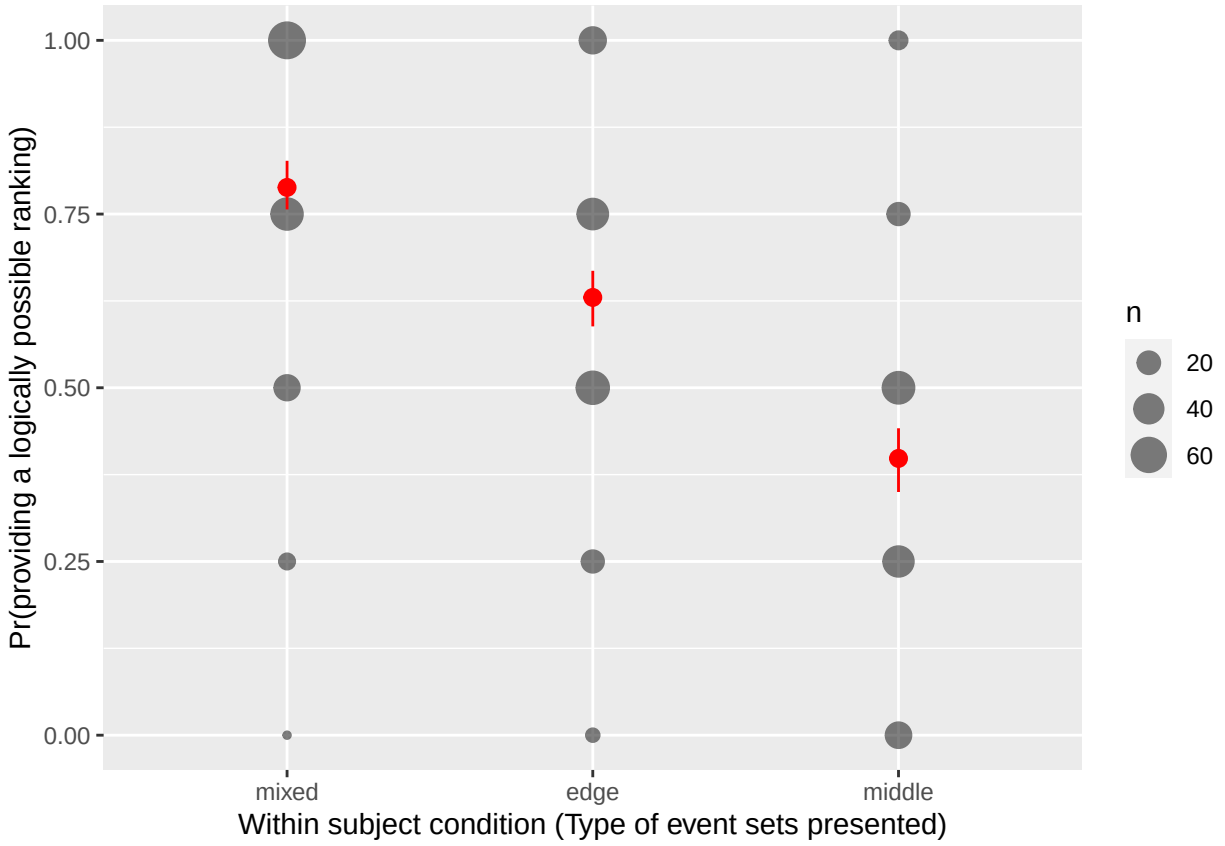
Descriptive results

For the condition where ties are allowed:

Prediction (1)

Regarding probability of giving logically possible versus all other rankings,

Pr(... | mixed event sets) > Pr(... | edge event sets) > Pr(... | middle event sets)



Results (1). I calculated each individual's probability of providing logically possible rankings based on four ranking trials. Grey dots show the number of individuals' at given y-axis. Red dots show overall means with 95% confidence interval.

Prediction (2)

Regarding conditional probability of giving Type-3 versus Type 1 and Type 2 ranking,

Pr(... | middle event sets) > Pr(... | mixed event sets) > Pr(... | edge event sets)

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## [1] 34
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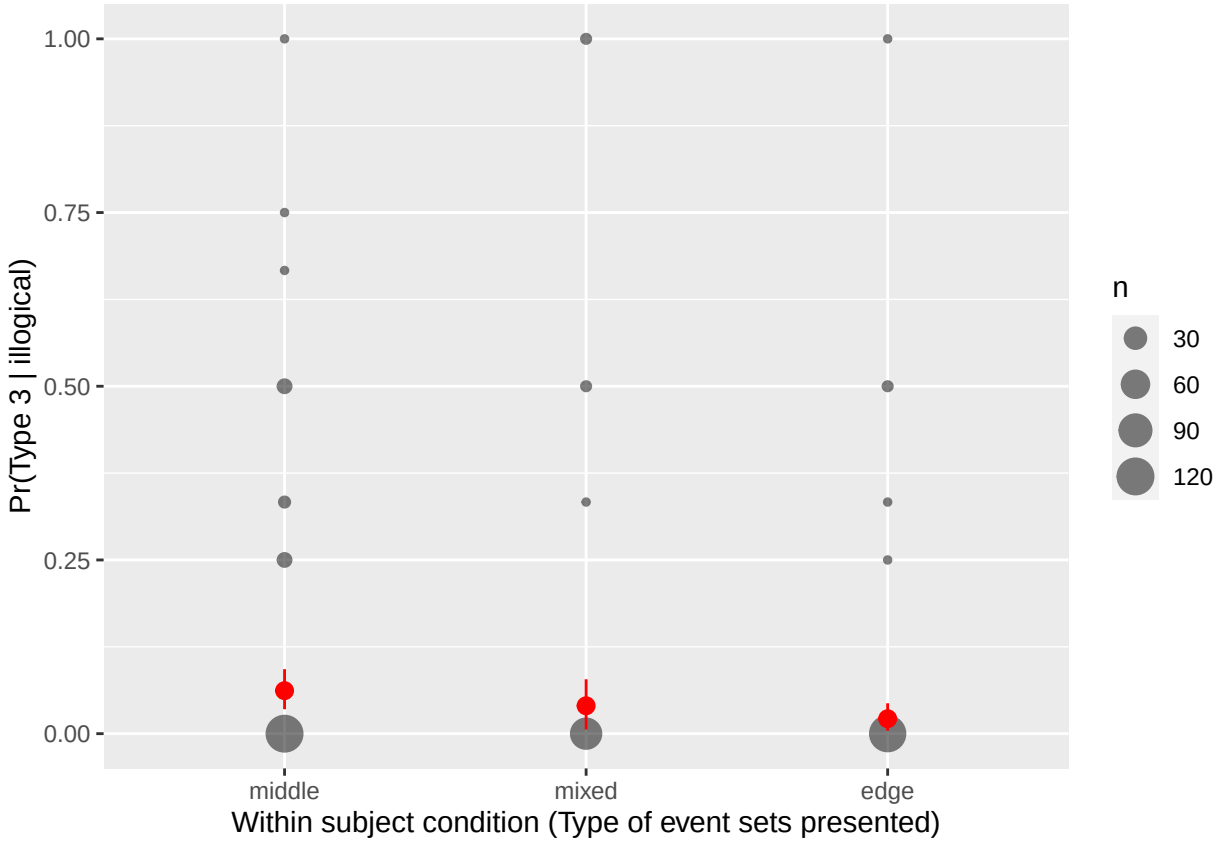
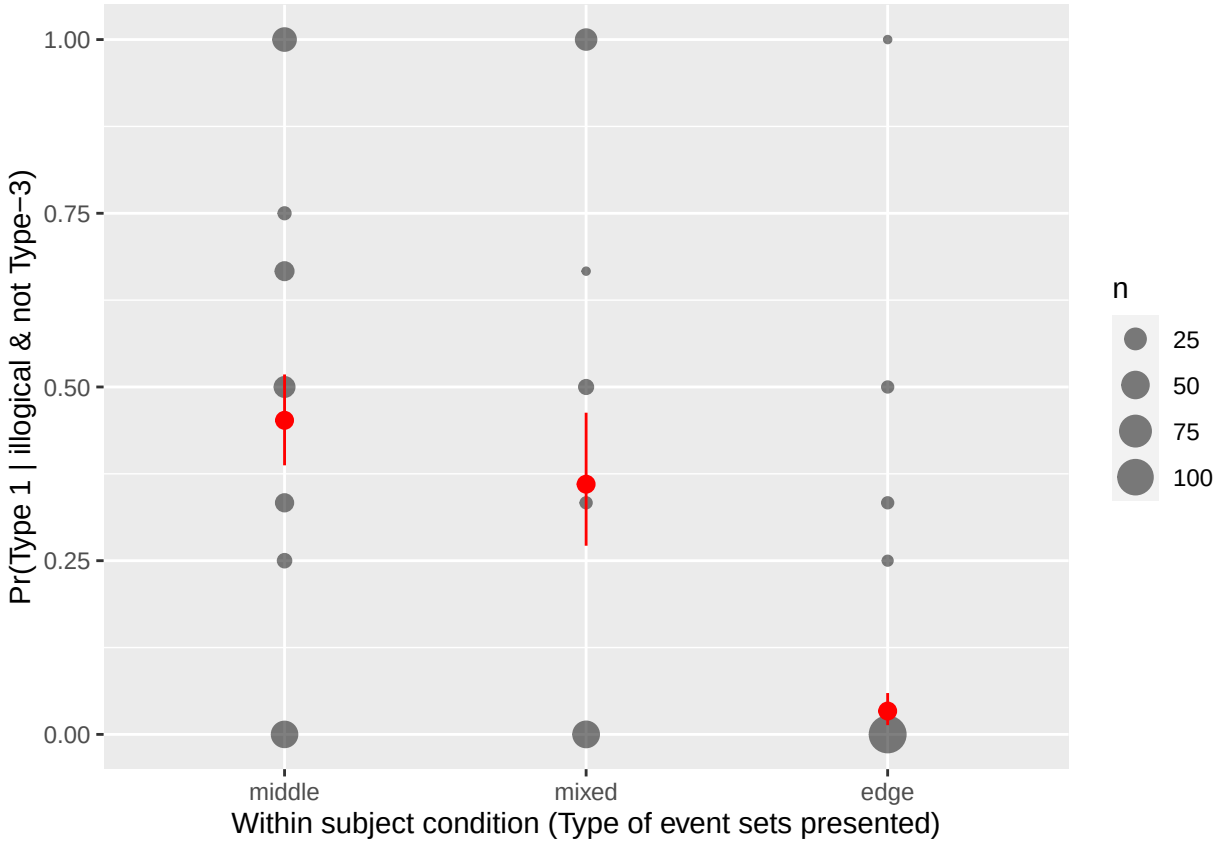


Results (2). I calculated each individual's conditional probability of giving Type-3 versus Type 1 and Type 2 rankings based on four ranking trials. Grey dots show the number of individuals' at given y-axis. Red dots show overall means with 95% confidence interval.

Prediction (3)

Regarding conditional probability of giving Type1 versus Type 2 rankings,

Pr(... | middle event sets) > Pr(... | mixed event sets) > Pr(... | edge event sets)



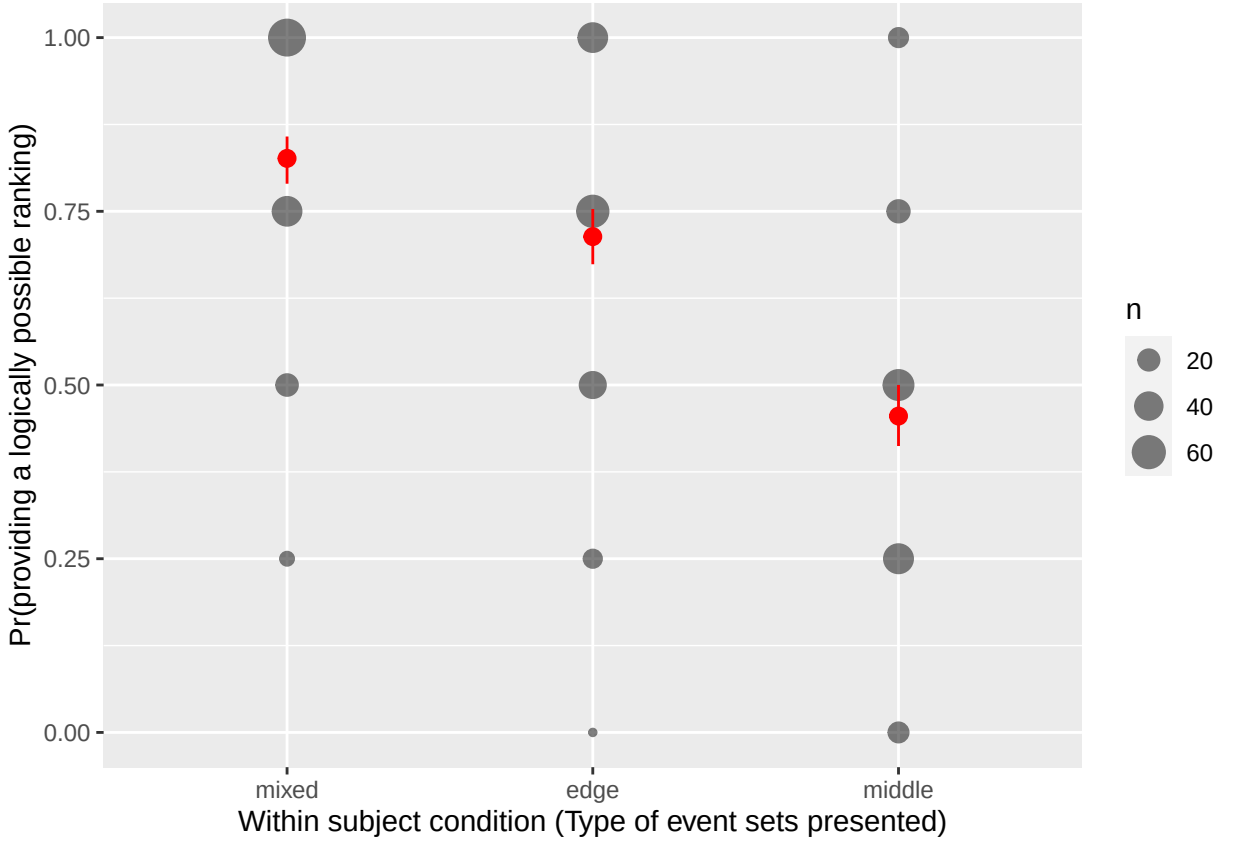
Results (3). I calculated each individual's conditional probability of giving Type1 versus Type 2 rankings based on four ranking trials. Grey dots show the number of individuals' at given y-axis. Red dots show overall means with 95% confidence interval.

For the condition where ties are not allowed:

Prediction (4)

Regarding probability of giving logically possible versus all other rankings,

Pr(... | mixed event sets) > Pr(... | edge event sets) > Pr(... | middle event sets)

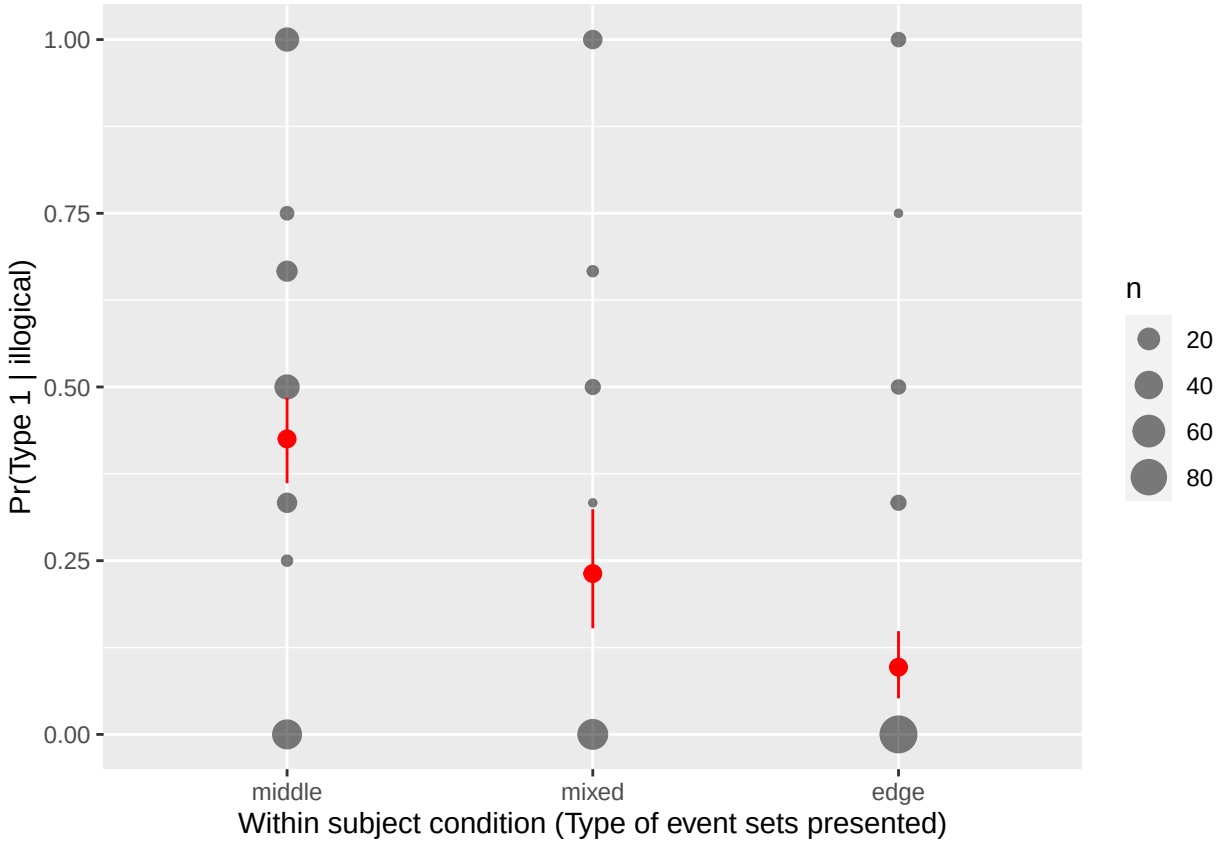


Results (4). I calculated each individual's probability of providing logically possible rankings based on four ranking trials. Grey dots show the number of individuals' at given y-axis. Red dots show overall means with 95% confidence interval.

Prediction (5)

Regarding conditional probability of giving Type1 versus Type 2 rankings,

Pr(. . . | middle event sets) > Pr(. . . | mixed event sets) > Pr(. . . | edge event sets)



Results (5). I calculated each individual's conditional probability of giving Type1 versus Type 2 rankings based on four ranking trials. Grey dots show the number of individuals' at given y-axis. Red dots show overall means with 95% confidence interval.

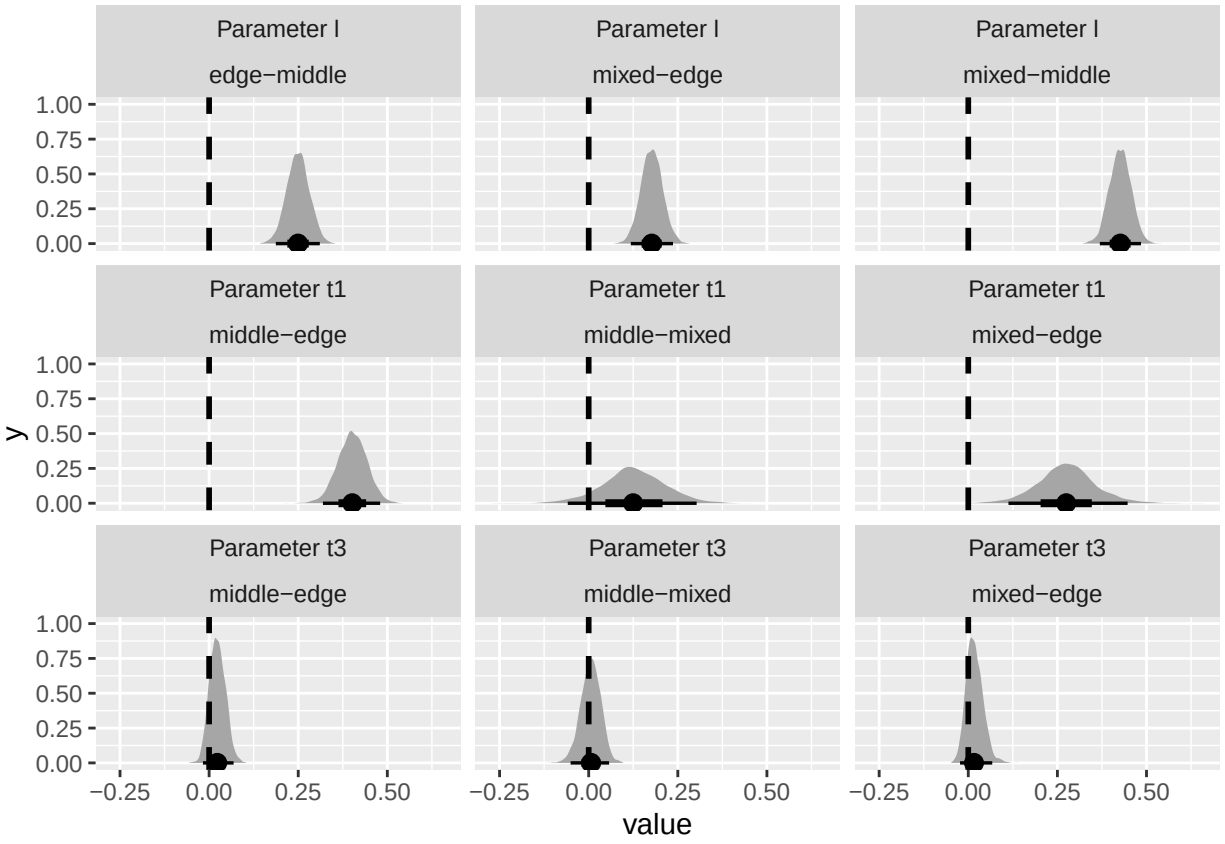
Model-based analyses

For the condition where ties are allowed.

As planned, I draw 9 difference distributions. But four comparisons did not pass the test we registered.

We cannot draw the conclusion that there are statistically meaningful differences among group-level "t3" parameters from all comparisons. (Note that "t3" parameter describe the conditional probability of giving a ranking that can be categorized as either a Type-1 or a Type-2 ranking.)

For "t1" parameter (which describes the conditional probability of giving a Type-1 ranking), one comparison (i.e., the comparison between the middle and mixed event sets) did not pass the test: in the difference distribution in the second grid in the middle row, only around 92% of probability mass is above 0. (As a reminder, our inference criteria is "If more than 95% of the probability mass is above 0, We will conclude that there is a statistically meaningful difference between the groups that we are comparing.")

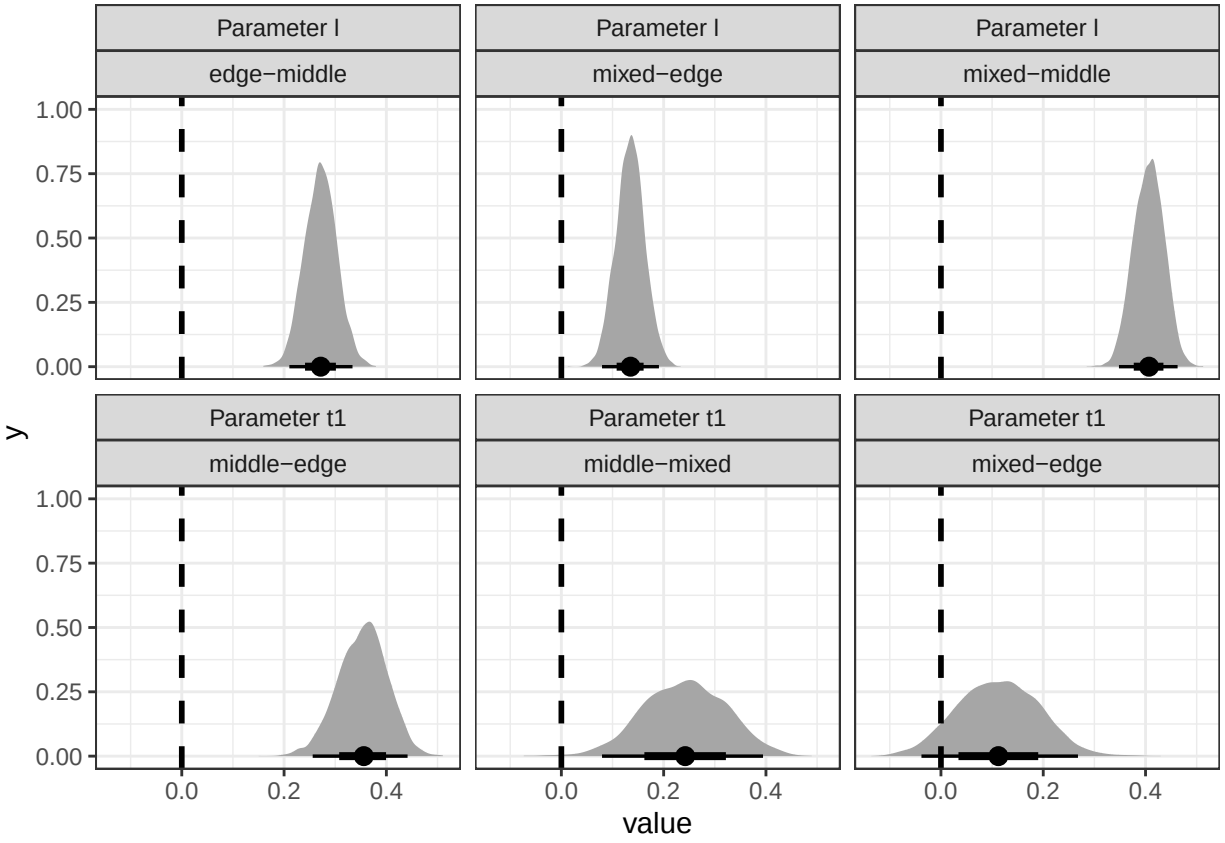


Difference distributions of the parameter l (in Top row panels), parameter t1 (in Middle row panels), and parameter t3 (in Bottom row panels).

For the condition where ties are allowed:

I draw 6 difference distributions for this condition. One of the 6 comparisons did not pass the test.

To be more specific, we predict that the conditional probability of giving a Type-1 ranking is higher when ranking mixed event sets compared to that when ranking edge event sets. However, for the difference distribution in the bottom right corner, only around 92% ($< 95\%$) of probability mass is above 0.



Difference distributions of the parameter l (in Top row panels), and parameter t1 (in Bottom row panels).